



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,605	11/29/2001	Francoise Vinet	34176	7379
116	7590	10/19/2004	EXAMINER	
PEARNE & GORDON LLP 1801 EAST 9TH STREET SUITE 1200 CLEVELAND, OH 44114-3108			KIM, YOUNG J	
			ART UNIT	PAPER NUMBER
			1637	

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/997,605	Applicant(s) VINET ET AL.	
	Examiner Young J. Kim	Art Unit 1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-18,20 and 22-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-18,20 and 22-31 is/are rejected.
- 7) ☒ Claim(s) 17,20,25 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1637

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 21, 2004 has been entered.

Preliminary Remark

The Examiner of record has been changed.

All further correspondence regarding this application should be directed to Examiner Young J. Kim whose Group Art Unit is 1637.

Claim amendment received on June 1, 2004 has been entered with the filing of the RCE.

Accordingly, claims 1-15, 19, and 21 have been canceled. Claims 16-18, 20, and 22-31 are pending and are under prosecution.

Claim Objections

Claims 17 and 25 are objected to because of the following informalities: claims appear to contain typographical errors. Specifically, the term, "nonometers," should be corrected to "nanometers." The support for this change can be found on page 3, line 27 of the instant specification. Appropriate correction is required.

Claims 20 and 27 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 20 and 27 recite the phrase, “wherein said material is a mixture containing SiO₂. The parent claims of these claims specifically recite that the layer material to be used are, “selected from the group consisting of HfO₂ and Ta₂O₅.” Therefore, claims 20 and 27 which include layer materials outside of the members of the recited Markush thus failing to further limit the parent claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 17 and 25 are indefinite for reciting the phrase, “a few nonometers,” because is it unclear what metes and bounds are encompassed by the term, “few.” Absent a specific demarcation recited in the specification, said term renders the above phrase indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1637

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 16-18, 20, 22-28, 30, and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Wagner et al. (U.S. Patent No. 6,329,209 B1, issued December 11, 2001, filed July 14, 1999, priority July 14, 1998).

Wagner et al. disclose a method of preparing an array surface, wherein said surface comprises a substrate and a metal layer, wherein said metal layer is disclosed as being tantalum oxide (column 14, lines 30, 32, and 45).

The surface is disclosed as being prepared for immobilization of protein capturing agents, (said agents disclosed as being polynucleotides – column 4, lines 53-55) (column 39-40).

The thickness of the metal layer is disclosed as being 50 nanometers (or nm) to 500 nm, further embodiments being from 1 nm to 1 μ m in thickness (column 14, lines 40-42).

The substrate material is disclosed as being any one of silicon, glass, gold, platinum, etc. (column 13, line 58 through column 14, line 14).

The array of Wagner et al. is disclosed as comprising a substrate, said substrate coated with coating, followed by the immobilization of protein-capture agents, said agents being polynucleotides (or oligonucleotides) (column 4, lines 53-55; and Figures 2 and 5).

Wagner et al. disclose that the surface is “micromachined” via well-known processes such as wet chemical and dry etching (column 7, lines 23-24).

Therefore, Wagner et al. anticipate the invention as claimed.

Art Unit: 1637

Claims 16-18, 20, and 22-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Maisenholder et al. (U.S. Patent No. 6,510,263 B1, issued January 21, 2003, filed February 3, 2000).

Maisenholder et al. disclose a sensor comprising a wave guide plate comprising a glass substrate covered with a waveguide layer (Abstract and Figure 4A-4E), wherein said waveguide layer material is selected from the group consisting of Nb₂O₅, TiO₂, ZrO₂, AlO₃, SiO₂-TiO₂, HfO₂, Y₂O₃, SiO_xN_y, Si₃N₄, HfO_xN_y, AlO_xN_y, etc. (column 5, lines 55-60).

Maisenholder et al. disclose that the sensor could be used for analytical purposes including biochemical sectors (column 1, lines 7-9), wherein biological molecules are attached to said waveguide layer material (Figure 3, column 3, lines 55-60).

The thickness of the layer material is disclosed as being between approximately 2μm to 100 μm (column 5, line 54).

The deposition of waveguide layer is disclosed as being conducted through magnetron sputtering (column 5, lines 21-23).

Finally Maisenholder et al. disclose a method of dry etching (column 5, lines 8-15).

Therefore, Maisenholder et al. anticipate the invention as claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner et al. (U.S. Patent No. 6,329,209 B1, issued December 11, 2001, filed July 14, 1999, priority July 14, 1998) in view of Drmanac (U.S. Patent No. 6,537,755, issued March 25, 2003, filed March 27, 2000, priority March 25, 1999).

The teachings of Wagner et al. are described above.

Wagner et al. do not explicitly teach that the employed depositing steps were at least sputtering techniques.

Drmanac discloses a method of depositing via sputtering technique in fabrication of array surfaces, which allows, "deposit layers of almost any substances on a surface with a very precise, controlled thickness." (column 15, lines 2-6).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to employ the well-known deposition technique of Drmanac to deposit the metal layer of Wagner et al. for the advantage of depositing layers with a very precise and controlled thickness. Wagner et al. while not explicit in disclosing that sputtering technique can be employed for deposition, gives a list of well-known deposition techniques such as PVD, PECVD, thermal processing, demonstrating that any known deposition technique would have been useful in their method. Additionally, one of ordinary skill in the art would have had a reasonable expectation of success at employing the sputtering deposition method of Drmanac for depositing the tantalum on to array surface, as Drmanac explicitly expresses that "any substances" can be deposited with such method.

MPEP, at 2143.02, states that the prior art can be modified or combined to reject claims as obvious as long as there is a reasonable expectation of success. Given the disclosure of

Art Unit: 1637

Drmanac stating that any substances" can be deposited with their sputtering method, one of ordinary skill in the art of array fabrication would have had a reasonable expectation of the success in employing the deposition method of Drmanac in the method of Wagner et al., further rendering the claims obvious over the cited references.

With regard to the use of acidic or basic solution to wash the array layer, while the artisans are not explicit in such a step, step of washing array surfaces between reactions are well-known and practiced in the art. Applicants are reminded that in *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342 (CCPA 1968), the court expressed that, "in considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inference which one skilled in the art would reasonably be expected to draw therefrom."

Therefore, for the above reasons, the invention as claimed is *prima facie* obvious over the cited references.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 1637

Claims 16-18, 20, and 22-31 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 18, 20, 31, 33, 34, and 35 of copending Application No. 10/450,158. Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons.

Instant claim 16 is drawn to a solid support comprising a layer material selected from the group consisting of HfO_2 and Ta_2O_5 .

Claim 18 of the '158 application is also drawn to an analytical support comprising a layer material selected from the group consisting of HfO_2 and Ta_2O_5 .

Instant claim 17 further defines the solid support, wherein said layer has a thickness of between a few nanometers and one micrometer.

Claim 18 (which is dependent on claim 14), recites that the coating of the layer should be at a predetermined thickness configured to produce a decrease or increase of the excitatory field, wherein claim 35 of the '158 application clearly contemplates thickness of 100 to 1000 nm.

Instant claim 18 recites that the support substrate is selected from glass, plastic or semiconductor substrates.

Claim 20 of the '158 application recites the same limitation.

Instant claim 20 recites that the material is a mixture containing SiO_2 .

Claim 18 of the '158 application recites a support comprising a layer wherein said layer is an SiO_2 .

Claim 22 recites that the support is formed of silicon.

Claim 20 of the '158 application recites that the solid support comprises a substrate made of semi-conductor material, wherein the specification of the '158 application contemplates a silicon substrate [0031].

The analytical support of the '158 application, wherein said analytical support is also disclosed as being biochip, [0001] rendering instant claim 23 obvious.

Instant claims 24-31 are drawn to method of making the above substrate, wherein claims 31 and 33 renders the claims also obvious over each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

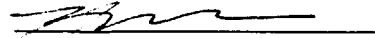
No claims are allowed.

Inquiries

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Young J. Kim whose telephone number is (571) 272-0785. The Examiner can normally be reached from 8:30 a.m. to 6:00 p.m. Monday through Thursday. If attempts to reach the Examiner by telephone are unsuccessful, the Primary Examiner in charge of the prosecution, Dr. Kenneth Horlick, can be reached at (571) 272-0784. If the attempts to reach the above Examiners are unsuccessful, the Examiner's supervisor, Gary Benzion, can be reached at (571) 272-0782. Papers related to this application may be submitted to Art Unit 1637 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If applicant does submit a paper by FAX, the original copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office. All official

Art Unit: 1637

documents must be sent to the Official Tech Center Fax number: (703) 872-9306. For Unofficial documents, faxes can be sent directly to the Examiner at (571) 273-0785. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1600.



Young J. Kim
Patent Examiner
Art Unit 1637
10/14/04

**YOUNG J. KIM
PATENT EXAMINER**

yjk